STATE OF MAINE
PUBLIC UTILITIES COMMISSION
242 STATE STREET
18 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0018

THOMAS L. WELCH
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COMMISSIONER

DOCKET FILE COPY ORIGINAL

August 27, 1998

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, DC 20554

Re: CC DOCKET 96-45, 97-160, FEDERAL-STATE JOINT BOARD ON UNIVERSAL SERVICE, DA 98-1587

Dear Ms. Salas:

Enclosed is an Original and six copies of the Maine Public Utilities Commission Comments in the above docket. Please date stamp one copy and return in the enclosed self-addressed stamped envelope.

Sincerely,

Joel Shifman

JS/llp
Enclosure

cc: International Transcription Service
Sheryl Todd

No. of Copies rec'd 0+5
List A B C D E

Before the
Federal Communications Commission
Washington, D.C. 20554

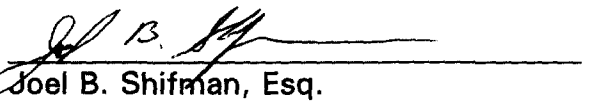
In the Matter of	)	
	)	
Federal-State Joint Board on	)	CC Docket No. 96-45
Universal Service	)	CC Docket No. 97-160
		DA 98-1587

Comments of the

Maine Public Utilities Commission

On August 7, 1998, the Common Carrier Bureau released a request for comments on approaches to a model platform that combines specific aspects from the customer location and outside plant modules of models that are currently under consideration by the FCC. The comments of the Maine Public Utilities Commission regarding three aspects of that proposal that may be used to model costs for Federal USF purposes are attached.

Respectfully submitted,



Joel B. Shifman, Esq.
Maine Public Utilities Commission
242 State Street, 18 State House Station
Augusta, Maine 04333-0018

COMMENTS OF THE MAINE PUBLIC UTILITIES COMMISSION

Distribution and Feeder Plant Design

In the proposal released for comment on August 7, 1998, the Common Carrier Bureau seeks comment on the use of "microgrids" as the building block for determining where customers are located. The Bureau has proposed the use of "microgrids" in place of the larger rectangular or square grids used by both the HAI and BCPM models because the large grids tend to distort the actual locations of customers. Although the default microgrid is comparatively small (360 feet on each side) we do not see any reason to accept the error the microgrid introduces into the loop design model when the actual location of each customer is known through the geocoding process. As an alternative to using the microgrids for determining the customer locations as part of the loop design process, we suggest using the location of the modeled drop terminal, which would be the closest pole or pedestal to the customer's actual geocoded location. The location of the drop terminal can be determined by modifying the clustering algorithm.

Location of Customers from Which No Geocode Exists

The BCPM suggests creating surrogate geocodes where no geocode is available by making the assumption that the customers are uniformly distributed along the internal and peripheral roads in the Census Block. We believe that assumption will understate costs for two reasons. First, the method will be placing some customers in the urban area of the Census Block where we know they cannot be located because geocodes are mostly unavailable for the most remote and rural

areas. Second, the costs of providing service to the customers who are not located on mapped roads will not be accurately reflected. The method we recommend to resolve the problem is to identify that portion of the Census Block which is populated with actual geocoded customer locations and then to randomly distribute the non-geocoded customers throughout the remaining area of the Census Block that is with a certain distance (e.g., one-half mile) of a road.

Actual Plant-to-Air Distance Conversion Factors.

In order to determine the length of loop plant that needs to be constructed, the proposed model uses an actual-to-airline distance conversion factor. The magnitude of that factor will depend on the typography of the area being served. While the customer density may have an impact on that factor, other considerations, including the slope of the land or the number of streams and necessary water crossings, will have a greater influence on the magnitude of that factor. The variability of the conversion factor is likely to be great between states and even within a state. Because of that variability we recommend that a separate conversion factor be employed for each wire center and that the factor be determined using more variables than just subscriber density. The average slope of the wire center, the miles of streams in the wire center, and the percentage of a wire center covered by water should be considered in developing the factor for each wire center.

wire center covered by water should be considered in developing the factor for each wire center.

Comments on the paper on HCPM 2.6 by C.A. Bush, et al.

1. In **The Customer Location Module**, the paper:

(a) does not define (at 6) the "line-weighted center" (or centroid) [of a cluster], explain how it is calculated, or specify how "line" is defined and measured (i.e., whether it is measured from the CO, the SAI, the boundary of a grid or cluster, or from some other point). The line-weighted center (or centroid) and how it is calculated should be rigorously defined in the model documentation.

(b) defines (at 7) a "raster" to be a grid covering an entire wire center, then states:

(1) that, to improve the model's computation speed, one point in each raster cell - the "line-weighted average" of all actual (geocoded) customer locations that fall within the cell - represents all customer locations that fall in the cell. Since this process sacrifices actual customer location data for computation speed, the model should make using a single customer

location represent all actual customer locations in a cell a user-selectable option.

(2) the model's default raster size is 500 feet. Since the raster is defined as a grid covering an entire wire center, however, presumably the 500 foot default raster size refers not to the raster size, but the cell size the raster (grid) determines. This should be clarified..

2. In footnote 9 (at 9), we believe the first two thresholds [the "copper gauge crossover" and the "copper distance threshold"] should refer to distances from a SAI, not from the central office, as stated, since those distances refer to distribution plant not feeder plant.

3. In section 4.1, **Distribution Plant Designs**, the paper states "the loop design module determines the cost of distribution plant for each cluster in isolation (ignoring information from all neighboring clusters)." Ignoring information from neighboring clusters, however, would appear to cause the model to overestimate carrying structure for each cluster and all its neighboring clusters that are connected to the same SAI.

4. In section 4.1.1, **Distribution Plant Within a Microgrid,** in the formula:

lots = H + (B/Average business number of lines per location)

it would appear the factor H should be replaced by

"H/Average number of lines per house"

from table 16. Also the average lines per house and per business should be user-adjustable inputs, to reflect actual local exchange data.

5. In section 4.2, **Feeder Plant Design,** the paper states "an OC-3 may be used to support 2016 lines." An OC-3 operates at 155.52 Mb/s and so will support about 100 T1s, each of which supports 24 lines. Thus, an OC-3 can support 2300-2400 lines.

8. Footnote 18 (at 14) appears to be missing.